

A NEW TREMATODE, *LEPIDODIDYMOCYSTIS*  
*IRWINI* N. G., N. SP. (DIDYMOZOIDAE) FROM  
A MARINE FISH, *MENTICIRRHUS NASUS*

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ABSTRACT

A new didymozoid belonging to Didymozoinae Ishii, 1935, is described. It is named after its collector, Mr. Roy Irwin, a graduate student at Tulane University. It was found underneath the scales below the lateral line of a marine teleost, *Menticirrhus nasus* (Gunther, 1868), from N. Mazatlan. The generic name refers to this special habitat. The most outstanding features of this trematode include: (1) flat semicircular hindbody with a distinct longitudinal furrow on concave side, (2) acetabulum present, (3) common genital pore opening at truncate apex of prominent genital papilla, (4) long esophagus, (5) single undivided ovary and single undivided vitelline gland, (6) cylindrical sinuous egg reservoir, (7) metratrem ciliated throughout its length, and (8) eggs not embryonated when laid.

INTRODUCTION

Twenty specimens on which the present report is based were taken by Mr. Roy Irwin, a graduate student at Tulane University, together with scales from below the lateral line of *Menticirrhus nasus* collected in N. Mazatlan, Mexico.

They had been previously fixed in formalin *in situ*; they were isolated from the cysts attached underneath the scales, refixed in 10% formalin, and stained with Delafield's hematoxylin. We gratefully acknowledge Mr. Irwin's furnishing the material for our examination. The worms, enclosed in pairs in transparent circular cysts, were so strongly flattened underneath the scales that the whole mounts clearly revealed the internal anatomy, making sectioning unnecessary. This parasite represents an undescribed didy-

mozoid for which *Lepidodidyomocestis irwini* n. g., n. sp. is proposed.

DESCRIPTION

Based on 20 whole mounts. Cysts flattened circular, about 3-5 mm in diameter. Forebody flattened claviform, conspicuously papillated at head end, finely annulated for remaining part, 0.53-0.82 mm long with maximum width of 0.13-0.32 mm posterior to its middle, whence it tapers gradually forward to a more or less sharp point, attached to anterior end of hindbody on its concave side. Hindbody flattened, semicircular, truncate anteriorly and rather pointed posteriorly, 3.6-5.1 × 2.44-3.58 mm; forebody embedded in a distinct longitudinal furrow on concave side of hindbody. Oral sucker terminal, oblong, 66-82 × 43-52  $\mu$ , weakly muscular, directly followed by spherical muscular pharynx 42-49  $\mu$  in diameter. Immediately behind pharynx clustered large claviform pharyngeal gland cells, with attenuated ends converging toward posterior end of pharynx. Esophagus narrow, 0.46-0.87 mm long, provided with a coat of small glandular cells throughout its length, bifurcating immediately as it enters hindbody; ceca lined with epithelia, strongly winding throughout length of hindbody and terminating at its posterior end. A cup-shaped, weakly muscular acetabulum 59-91  $\mu$  in diameter lies on concave side of hindbody near base of forebody. Testes paired, long, tubular, winding, usually close to each other, rarely divergently in anterior part of hindbody near concave side; in type they reach just beyond equatorial level, with their

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ends somewhat swollen. Vas deferens narrow throughout its length, without forming a definite seminal vesicle, distinctly ciliated just before uniting with metraterm at base of genital papilla. Genital papilla projecting prominently ventral to oral sucker, 25-40  $\mu$  in diameter, flattened at apex where wide common genital pore opens. Ovary a single, long, narrow tubule, 23-53  $\mu$  wide, irregularly winding in axial region of hindbody, reaching to near its posterior end. Vitelline gland also a single, irregularly winding, narrow tubule, 30-67  $\mu$  wide, extending on convex side of hindbody to its extreme posterior end, its anterior portion turns back on itself at truncate anterior end of hindbody and after describing several turns joins proximal end of ovary. This end is often swollen like proximal end of vitelline gland; seminal receptacle 74-178  $\times$  45-97  $\mu$ , situated at this genital junction. Uterine duct provided with a thick coat of gland cells, runs sinuously forward to recurrent portion of vitelline gland, where it passes to uterus proper, the latter winding backward to posterior end of the hindbody and then forward to anterior end of hindbody and once more backward, to lead into egg reservoir near the posterior extremity, thus forming four loops altogether and occupying greater part of hindbody; egg reservoir cylindrical, sinuous, close to concave side of hindbody; metraterm well differentiated in forebody, distinctly ciliated inside throughout its length. Egg oval, thick-shelled, operculate, 12-15  $\times$  9-11  $\mu$ , ova contained in metraterm not yet embryonated, almost all in 2-cell stage. Excretory system not made out.

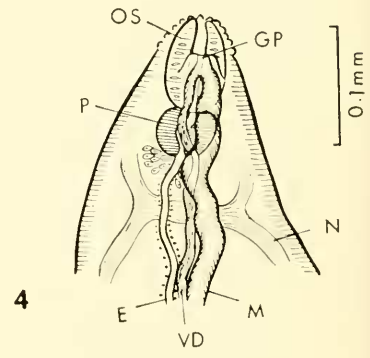
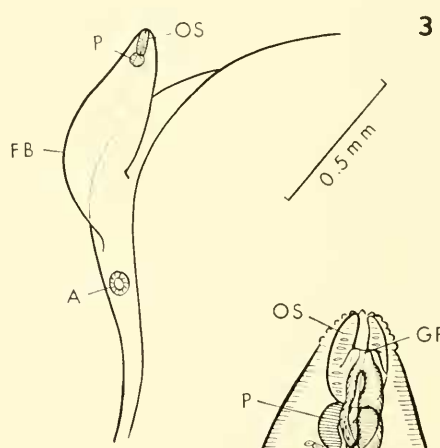
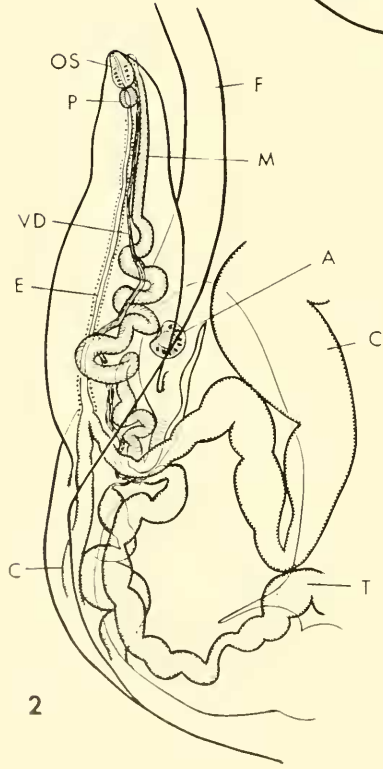
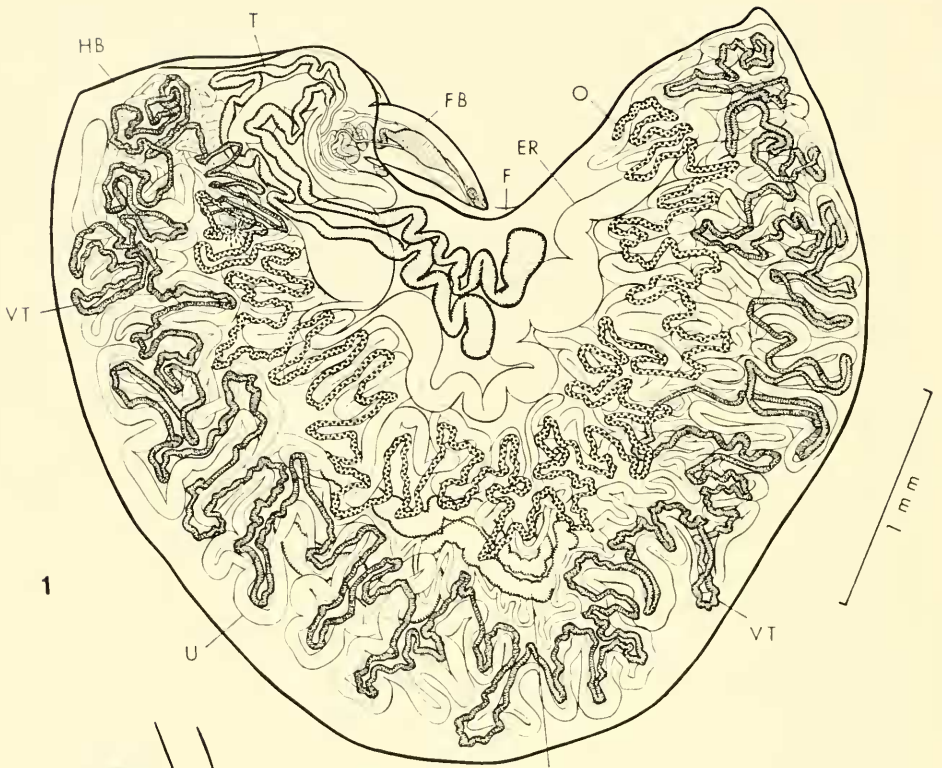
#### DISCUSSION

In general internal anatomy and habitat this genus bears a marked resemblance to *Dermatodidymocystis* Yamaguti (especially *D. viviparoides* Yamaguti) (in press) but differs from it in the possession of: (1) a longitudinal furrow and an acetabulum on the concave side of the hindbody, (2) a prominent genital papilla ventral to the oral sucker, (3) a uterus regularly forming four longitudinal loops before leading into a prominent egg reservoir, and (4) unembryonated eggs, an important character since most other didymozoid eggs are generally embryonated *in utero*. There is no doubt

that the genus in question belongs in the Didymozoinae. It is named in reference to the special habitat (beneath the scales), and defined as follows:

GENERIC DIAGNOSIS. Didymozoidae, Didymozoinae. Complete hermaphrodites, encysted in pairs. Forebody small, flattened claviform, attenuated anteriorly, attached to hindbody near its anterior end, papillated at head end, and finely annulated elsewhere. Hindbody smooth, approximately semicircular, truncate at anterior end, conical at posterior end, with distinct longitudinal furrow on concave side, where a cup-shaped, weakly muscular acetabulum is present near base of forebody. Oral sucker terminal, weakly muscular; pharynx spherical, muscular, with well developed postpharyngeal gland cells behind. Esophagus long, narrow, surrounded by small glandular cells throughout its length, bifurcating as it enters hindbody. Ceca strongly winding, terminating at posterior extremity of hindbody. Testes two, tubular, winding in anterior half of hindbody close to concave side; vas deferens narrow, not forming definite seminal vesicle, ciliated just before uniting with metraterm. Common genital pore opening at apex of prominent truncate genital papilla ventral to oral sucker. Ovary single, tubular, long, undivided, winding in axial region of hindbody and reaching to near its posterior end. Vitelline gland tubular, long, undivided, winding from extreme posterior end of hindbody to its anterior end, where it turns backward to join anterior end of ovary, so that genital junction lies near truncate anterior end of hindbody. Seminal receptacle present. Uterus occupying all available space of hindbody, forming four longitudinal loops before leading into conspicuous egg reservoir which extends longitudinally along concave side of hindbody; metraterm well differentiated, ciliated inside throughout its length. Eggs operculate, thick-shelled, not embryonated *in utero*. Excretory system not made out. Parasitic underneath scales, especially below lateral line, of marine teleosts.

Type species: *Lepidodidymocystis irwini* n. g., n. sp. in *Menticirrhus nasus*; N. Mazatlan. Forebody 0.53-0.82  $\times$  0.13-0.32 mm, hindbody 3.6-5.1  $\times$  2.44-3.58 mm; eggs 12-15  $\times$  9-11  $\mu$ .



## LITERATURE CITED

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Figures 1 to 4. *Lepidodidymocystis irwini* n. g., n. sp. Fig. 1. Holotype, lateral view; Fig. 2. Paratype 16, lateral view of entire forebody and part of hindbody; Fig. 3. Paratype 7, general view of forebody and acetabulum; Fig. 4. Paratype 7, ventral view of anterior extremity of forebody.

Abbreviations used in figures: A acetabulum; C cecum; E esophagus; ER egg reservoir; F longitudinal furrow on concave side of hindbody; FB forebody; GP genital pore; HB hindbody; M metraterm; N nerve; O ovary; OS oral sucker; P pharynx; T testis; U uterus; VD vas deferens; VT vitellarium.